Author's response to reviews

Title: The efficacy of physiotherapy upon shoulder function following axillary dissection in breast cancer, a randomized controlled study

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Author's response to reviews: see over
Dear Dr Lolu da-Silva,

Thank you for the valuable comments concerning our manuscript 'The efficacy of physiotherapy upon shoulder function following axillary dissection in breast cancer, a pilot study'.

Below you will find a point-by-point response to the comments as the reviewers suggested (in bold) and this is associated with the revision of the manuscript (in bold and italics).

A native English speaker also has revised the manuscript.

We feel that the manuscript suits the best for BMC Cancer and not for BMC Musculoskeletal Disorders. So we would be very happy if the revised manuscript is acceptable for publication now.

With kind regards,

Dr. Caro van Uden

Reviewer Adri C Voogd

- The authors call their research a pilot study. What is their definition of a pilot study and what are the implications for the strength of the evidence.
From the title it should become clear that this is a randomized controlled trial.

* As there are no ‘gold standards’ and there is insufficient information available concerning the effect sizes of physiotherapy for patients following breast cancer surgery including axillary lymph node dissection (ALND) this study has a small sample size. The outcomes of this study can be used for calculations in a larger effect study. (See Discussion second paragraph)
The title is changed in: ‘The efficacy of physiotherapy upon shoulder function following axillary dissection in breast cancer, a randomized controlled study’. (See title)

- The information on page 5 of the methods section is not presented in a logical order. The subdivision in subjects and design seems artificial. It makes more sense to start the methods section with the first sentence under "design" (The efficacy of physiotherapy was assessed ...". It is not clear why the patients
had to visit the Department of Physiotherapy (concurrent to the first outpatient clinic control). What activities took place during that visit? Randomization? Baseline measurements?

* The subdivisions subjects and design are removed. *(See Methods)*

The methods section now starts with: The efficacy of physiotherapy was assessed ....

Patients who were willing to participate in the trial attended the Department of Physiotherapy for physical assessments two weeks after surgery, which was concurrent to the first outpatient clinic visit to the surgeon. Baseline measurements were assessed and patients who met the inclusion criteria signed an informed consent. Random assignment was done by an independent co-worker of the department into one of the two groups. *(See Methods, second paragraph)*

- selection process. When were the patients informed about the trial and when did the randomization take place? Before surgery or after? The authors write that the study was performed from July 2003 to January 2005. Does this mean that patients were entered in the trial during this period? If so, how many patients underwent ALND during this period in the two participating hospitals?

* Patients were given a subject information sheet by a member of the nursing staff during their hospital stay. *(See Methods, second paragraph)*

Randomization: Took place after surgery. The sentences are changed in: Patients who were willing to participate in the trial attended the Department of Physiotherapy for physical assessments two weeks after surgery, which was concurrent to the first outpatient clinic visit to the surgeon. Baseline measurements were assessed and patients who met the inclusion criteria signed an informed consent. Random assignment was done by an independent co-worker of the department into one of the two groups. *(See Methods, second paragraph)*

The study was performed from July 2003 to January 2005 and patients enrolled between August 2003 and June 2004. *(See second sentence Methods section)*

Amount of patients that underwent ALND during this period: Thirty-six women with breast cancer surgery and ALND were operated during the trial. Six patients did not give informed consent as they were convinced that they needed physiotherapy and did not want to take the risk to be placed in the control group. *(See first two sentences Results section)*

- randomization

The randomization procedure is described in such a way that it is not clear if the random allocation was really blinded. Please indicate if there was concealed randomization.

* Concealed randomization was achieved using a computer-generated random list, which was kept by the co-worker. All assessments were done at the RUMC Department of Physiotherapy by a single
researcher, who did not participate in the treatment of the patients. The researcher was blinded to the treatment allocation and patients were instructed not to discuss their treatment with the researcher. (See Methods, second paragraph)

- measurement. When did the base-line measurement take place? Was any check done to see if the blinding of the researcher doing the assessments was successful?

* The baseline measurement took place two weeks after the surgery. The sentences are changed in:
 Patients who were willing to participate in the trial attended the Department of Physiotherapy for physical assessments two weeks after surgery, which was concurrent to the first outpatient clinic visit to the surgeon. Baseline measurements were assessed and patients who met the inclusion criteria signed an informed consent. (See Methods, second paragraph)

Successful blinding: The researcher made a note after the final assessment, to which group allocation that they thought the patient belonged. (See Methods, second paragraph, last sentence)

- treatment. What exercises were prescribed to prevent lymph edema? Did all patients receive nine sessions of physiotherapy and how many weeks did these nine sessions take? Were there any patients who received more then nine sessions or any additional sessions during the one-year follow-up period? Was there any contamination with physiotherapy in the control group?

* Exercises to prevent lymph edema came from Casley-Smith: ‘Modern treatment for lymph edema’. (See reference 13)

All patients received nine sessions, the total amount of session giving within three months. (See section Intervention Physiotherapy group, last but one sentence)

No patients received more then nine sessions or any additional sessions during the follow-up period. (See Results, last paragraph)

There was no contamination with physiotherapy in the control group. Sentence changed in: None of the control group received physiotherapy treatment. (See Results, paragraph one, 6th sentence)

- Analysis. Did the authors follow the intention-to-treat principle when analyzing the data?

All thirty women completed the study protocol in the group as they were divided to. In the follow-up period one patient from the control group died before the last assessment.

* None of the control group received physiotherapy treatment, so no intention to treat analysis was necessary.
- Any limitations with respect to the above mentioned methodological issues need to be addressed in the discussion of the paper.

* Limitations are mentioned in the Discussion section. *(See Discussion, paragraph four)*

- In several places the authors write that all patients under study had a modified radical mastectomy (page 4, last sentence; page 10, last sentence of 3rd paragraph). This is not true, as seven patients with breast-conserving treatment were included.

* Thank for noticing this mistake, is everywhere, when necessary corrected in: all patients have had a breast cancer surgery with ALND.

- The information in the discussion (page 10) that 50% of the physiotherapists reported that treatment continuation could be beneficial should be in the results section.

* This information is placed in the Results section. *(See Results, last but one sentence)*

- What is the authors' definition of delayed onset exercises (page 11)?

* 3 to 14 days (reference 4, 16, 17). *(See Discussion, second paragraph)*

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

- page 9: Not only the percentages, but also the absolute numbers should be given.

The absolute numbers are given also. *(See Results, second paragraph)*

- page 10, Discussion: "The study showed that physiotherapy, starting two weeks after surgery, significantly improved ..."

* Sentence is changed: This study showed that physiotherapy, which began two weeks after surgery, improved shoulder function and quality of life........ *(See Discussion, first sentence)*

- page 13, reference 6: The authors should look for an alternative reference. Study results of this group, including percentage of patients visiting a physiotherapist, have also been presented in the international literature, for example Br J Surg 2003, Voogd et al.

* The reference is adapted. *(See reference 6)
Reviewer: Peer Christiansen

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

- Before publication, the above mentioned Danish study (Lauridsen et al. Acta Oncologica 2005; 44: 449-57) should be referred to and properly addressed in Background and Discussion.
* The Danish study is referred (See reference 11), addressed in Background (see Background section, second paragraph) and in the Discussion section (see Discussion, second paragraph)

Discretionary Revisions (which the author can choose to ignore)

- In the description of the study design it could be helpful if it more clearly was stated that the assessments were done by one single researcher (if so) and made at the Department of Physiotherapy, which did not participate in the actual treatment of the patients.
* The sentence is changed in: All assessments were done at the RUMC Department of Physiotherapy by a single researcher, who did not participate in the treatment of the patients. (See Methods, second paragraph)

- When measuring arm volume a method of water displacement was used. Instead of giving total volume, or as a supplement to this, the difference in volume between the affected- and non-affected arm could be reported, as this might decrease the variation caused by doing measurements over a rather large time span.
* We have chosen to report the volume of the operated arm in the table, as this gives an idea about whole volume.